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A SHORT ESSAY ON PAST AND PRESENT MEDICINE;

BEING IN PART THE INTRODUCTORY ADDRESS

AT THE

SHEFFIELD MEDICAL SCHOOL.

WINTER SESSION, OCTOBER 2, 1865.

By WILLIAM FRANK-SMITH, M.B., LOND.

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TO


HENRY JACKSON, ESQ., F.R.C.S., ENG.,

PRESIDENT OF THE SCHOOL,

AND

SENIOR SURGEON TO THE SHEFFIELD

INFIRMARY.



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PROEM.

THE whole Science of Medicine consists in the knowledge of exceptional and abnormal conditions of the human organism.

The lecturers on Anatomy and Physiology will have the task of developing day by day before your eyes, a *picture* of the human organism.

Now drawing broad outlines, now filling in with details more minute than the most conscientious Pre-Raphaelite ever dreamt of.

For me it will be to mar and spoil and deface the complex and beautiful image.

They will describe the nervous system, its great central masses apparently so simple and uniform in their elements, cell, granule, and process; but in their arrangement so intricate, that it forms a *terra incognita* into which the most patient investigators penetrate only to become dazed and lost.

Its great lines of communication which ramify, decussate, interchange, and are finally distributed, so far attenuated that their ultimate arrangement is an enigma only second in difficulty to that of their central origin.

They will describe this great system in action in the living animal, its centres at one time sending forth impulses of immense energy; of such energy indeed, that considering the

small space within which they are generated, the effects of the most powerful machines seem feeble when compared with them. At another time vibrating with sensations the most vivid and exquisite.

At another, forming a surface more smooth and still than the most perfect mirror, reflecting with supreme accuracy the objects that surround it.

Or again ; reposing in the deepest silence, noiselessly and imperceptibly accumulating fresh forces.

I shall have to show you the same system, its structures torn and lacerated by escaped fluids—its ultimate elements rotting as it were into shapeless aggregations of oil globules. Those beautifully co-ordinated moter impulses which they will describe to you as so perfect, that the finest mechanism appears clumsy in comparison, I shall have to exhibit to you hurried and distorted in the vagaries of chorea, or horribly exaggerated in convulsion or tonic spasm.

The phenomena of sensation of which they will treat in its many degrees and adaptations, varying from the “*Besoin de respirer*,” the gentle impression that sets in motion the mechanism of respiration, to the most vivid conceptions of form and colour, the most intense thrills of pleasure from touch or taste.

I shall have to describe when concentrated on some diseased or mutilated organ, it changes every moment into a year of agony.

Instead of that welcome pause in our swift life, that sleep in which Nature with her own hand closes the tired eyelids, I shall speak of coma, the condition in which this strong and complex life of ours is reduced to the helpless, formless existence of a sponge. And last of all, that twin brother of sleep, inevitable death.

From Physiology you will learn of that great hydraulic system, the circulation, how the Heart by a co-ordinated

series of actions, which though its mechanism consists of merely four contractile sacs and four ordinary valves, are so swift and complex, that up to this day physiologists are not agreed as to the meaning of the simple impulse you may feel with your hand.

You will learn how year after year this simple arrangement of elastic sacs, this heart untiring, ever vigilant, adapts itself to all conditions of the circulation, whether the blood be gently percolating the system in sleep, or driven in masses to the labouring muscles, or poured with a copious but steady stream into the brain of the thinker.

I shall have to show you this same heart with its valves torn, or occluded with vegetations, or its blood current driven back upon it from an impermeable lung, labouring day after day under greater and greater disadvantage, for a time making way against the oppression by that admirable expedient which I shall treat of as the hypertrophy of compensation, but hour by hour becoming more behind hand with its task, and sooner or later growing weary and ceasing for ever.

Again, that third element of the Trinity of life the Lung, will be demonstrated to you as an organ in which are to be observed at one and the same time, the chemical process of oxidation.

The physical phenomena of exosmosis and endosmosis of gases.

The mechanical of elasticity.

The organic of contraction.

The hydraulic of circulation.

The static of atmospheric equilibrium.

I shall have to interfere with these one by one.

The life-giving colour-generating oxygen will no longer combine with the carbon-laden blood.

The carbonic acid, ghost of dead tissues, will no longer escape through the fine membrane.

The dilated and distorted cells and tubes will no longer close in upon the intruding air.

The organic fibres with suicidal force will shut out their own life breath.

And yet once more I might say, how that smooth and beautiful surface which you will study as the integumentary system, will suffer at my hands.

How that great system of canals, the cutaneous capillaries instead of conveying the blood smoothly, unseen, or only just shining through the transparent skin, as a delicate flush, becomes occluded by a sluggish stream, or a dull stagnation covering the fair surface with spots and mottling blotches frightful to be seen.

How the "*cutis vera*" which forms so soft and even a bed for the terminal nerve-fibres will have its processes distorted into papular mountains, pustular volcanoes.

Lastly, how the delicate epiderm, (so delicately fine as not to dull the slightest sensory impression, and yet so firm and complete a suit of armour for the soft structures which it protects,) when the balance between its ever-recurring birth and death is shaken, may be torn by countless cracks and gaping fissures, or exaggerated into a leprous hide that turns the wretched creature whom it envelops into an object hideous, loathsome, horrible to see.

It may seem that an undertone of something like pain and repining runs through these words of mine, and perhaps it is so.

For though in the daily round of practice, disease and suffering are so constantly in our thoughts, that they seem to lose the deep and startling effect which they exert over other minds,—seem to become mere matters of routine; yet, when we confront them in the abstract as we are doing to day; when we stand for a little space at the dark entrance of that valley of the shadow of death, through which we are about

to make our journey; when we look down as it were on the narrow devious pathway that is traced out for us, here obscured by pestilent mists, there hidden by I know not what noxious darkness, haunted always by shapes pallid, frightful, by sounds and voices scarcely human by reason of their great despair and agony; it is not possible but that something of melancholy should possess us; not possible to avoid the questioning eyes of Nature, the Sphinx ever proposing the same dark enigma; that riddle of the painful earth never solved, avoided, forgotten, answered by hundred foolish answers, never solved, always in our path.

To us only of men it is given to hear that great cry of human pain that goes up to heaven night and day; to us it is given, a sad privilege, to share with God the audience of that strange chorus that through the years of time has sung the Litany of pain—never ceasing, for no sooner is one voice silenced by weariness or death, than another takes its place.

When on the earth, long cycles ago, while it was still without form and void, the light of the sun struck the first spark of life from the inorganic world. When in germ or cell, or monad, began the first movement of that great battle between the actinic rays of light and the affinities of the inorganic elements, of which the outward sign is not more nor less than the whole organic world; beast and fowl, herb and tree, if haply there were witnesses of this, God's or Dæmons, such as were capable of prescience and capable of pity. There would have been among them great wonder as they foresaw the marvellous results of form and colour unfolding before their sight like a device of art growing upon the simple woof and weft of a tapestry, great wonder and admiration, but also great horror when they saw how from each typical form would be developed monsters, excrescences, abortions, hideous to the eyes that saw them, and as the crown of horror, hideous to themselves.

Some such fear is at times felt by us, the students of the dark places of nature, though our perceptions are dulled by use and wont, though the tale becomes

“A tale of little meaning, though the words are strong.”

There are times also when we are forced to pause and think, to count the cost, to balance the good and the evil of life, the pain and the pleasure; when we compare the labour and toil, and patient painstaking with the result. And then we cannot but repeat the “*Ματαιότης ματαιότητων.*” The “Vanity of vanities, all is vanity.”

At times too, when we are watching the spectacle of human will and intellect and foresight fading impotently away under the seemingly purposeless action of simple structures, whose minute elements we can dissect and demonstrate beneath our microscopes, of fluids whose chemistry we know to the last atom; we succumb to a kind of fatalism more gloomy than that of superstition,—the fatalism of science.

But we are not without compensation, for the very toil by which we gain our bread might be envied us. It is ours *κατέξοχόν*, to know.

The fruit of the tree of knowledge is given to us, and while others pass blindfolded from the entrance gate of life to the doors of the tomb, where death the carnifex awaits them, we at least have the privilege of entering with our eyes undarkened.

* * * * *

IT is a much-vexed question, whether Medicine can be considered as a science or no. And I have thought it worth while to devote the remainder of the address to an inquiry into the following double problem, "Has there been previous to this epoch a science of medicine?"

"Does such a science exist now?"

At the time of the 80th Olympiad, medicine in Hellas had long been a recognized institution. It was practised almost exclusively by the sect of the Asclepiadæ, the real or supposed descendants of the Homeric Asclepios.

These Priest Physicians lived and practised in certain Temples dedicated to Asclepios, and called Asclepia, nearly always pleasantly and healthfully situated among the hills, in the neighbourhood of hot or medicinal springs. At one time there were no less than sixty-four of these temples in Greece and the Greek Colonies.

When a Greek gentleman felt seriously ill, his friends conveyed him to Cos or Cnidos, or whichever of the classical Malverns and Matlocks seemed most convenient, or of the highest repute.

On his arrival at the porch of the temple, he was received with solemnity by the Presiding Physician, always an old man, august and reverend, and from that moment was his own master no longer. On his entrance he was subjected to a course of preliminary lustrations, then his diet, for a time varying with the nature of the case, was reduced to a free allowance of fresh air. And no doubt in the case of dyspeptic

Corinthian merchants, and luxurious Persian gentlemen, surfeited with the mixture of grape lees and sea water, which they drank for wine; and the compounds of rich meat and spices which represented their cuisine, this process alone would almost suffice for a cure.

The period of forced abstinence having elapsed, plain and nutritious food was provided, carefully graduated in quantity and digestive quality, and not only excellent dinners, but excellent appetites gained by exercises in the gymnasium, by horse exercise, or if this were not possible by gestation.

As for the medicaments, it seems that it is to these worthy priests that our clairvoyant professors owe their distinctive *modus operandi*, for the patients after certain pious rites were set to dream what remedy would be most appropriate. And I find that these dream-prescriptions generally consisted of some such pleasant compounds as honey and milk, or useful and simple one such as sword-rust and wine.

While the physical treatment was being carried on in a manner so eminently *tuto et jucunde*, the imagination was being acted upon most energetically. Everything that their beautiful and graceful religion could do to amuse and make cheerful their minds was done. The Divine Asclepios was daily propitiated, and prayers and fragrant incense arose to the Gods from their shrines without ceasing.

Last of all I may mention, not a little to the credit of the Asclepiadæ, that careful registers of the different cases, and of the phenomena of the diseases which came under their notice were kept, and accordingly no little skill in prognosis attained.

Such was the Art of Medicine when at the Island of Cos Hippocrates, a well-authenticated descendant of Asclepios, began to practise and to reduce his experience to the form of regular systematic treatises.

It was a time of great intellectual activity. Athens was near

the culminating point of her splendid prosperity. A great wave of thought seemed to be passing over the world. In the far east Confucius was planting the wonderful system of morals that exists to this day.

In Persia, Zoroaster was propagating that most excellent and rational of pagan religions which has survived persecutions of unparalleled cruelty, extent, and persistence, and is still cultivated by the Parsees of Bombay, the most intelligent and wealthy of the Orientals. The talkative and busy Greeks were reasoning, theorizing, philosophizing, and disputing on every subject beneath the sun, and it would have been a remarkable exception if medicine had escaped their restless intellects. Accordingly, theories of the causation of disease, with corresponding theory and practice of treatment, were multiplied. A systematic medicine arose, which passing through alternate stages of advance and retrogression, has come down to us an immense accumulation of experience and theory. Now fostered by the subtle brains of the Asiatic Greeks, Aretæus or Dioscorides, or Galen; now warehoused as it were by the voluminous and powerfully-credulous Pliny; at one time again passing by a strange transition from Europe to the East, bodily transplanted as it were to Bagdad and Damascus, again taking root in the West, and flourishing with fungoid exuberance under the influence of such professors as Paracelsus, the alchemist, Mystic and Physician. Still later receiving fresh elements from the nascent physiology of the Schools of Holland. And finally reduced to symmetry by the sharp and narrow intellects of Edinburgh. A long and imposing history of progress and development. Alas, no! a long, long story of accumulation and corruption. I think the history of no retrograde movement in the world, neither the decline and fall of empires, nor the corrupt development of religions, can furnish us with so powerful a picture of human error and degradation.

I, for my part, believe that the age of the Asclepia was the golden age of medicine, and that from that day to [within fifty years of the present date, the progress of medicine has been one almost uninterrupted *descensus averni*. I believe that intelligent Physician Priests like Hippocrates, by studying the progress of diseases, unaffected by violent remedies, arrived at a very extensive and accurate knowledge, not only of their symptoms, but of their natural terminations.

In such of their records as have come down to us, it is most interesting to remark the distinct and confident manner in which they indicate certain days for the fatal or favourable termination of a malady; others for the appearance of phenomena which they held to be critical.

Among the aphorisms of Hippocrates, whose writings may be very fairly taken as representative of the science of the period to which I allude, you will find several which fix the day of events in the history of diseases. Thus in the 23rd of the second section, he says:—τὰ ὀξέα τῶν νόσσημάτων κρίνεται ἐν ταῖς τεσσαρεσκαίδεκα ἡμέρησι.

Acute diseases come to a crisis in fourteen days.

In the 36th Aphorism of the 4th book, “sweats in febrile diseases are favourable if they set in on the 3rd, 5th, 7th, 9th, 11th, 14th, 17th, 21st, 27th and 34th day, for these sweats prove a crisis to the disease, but sweats not occurring thus, indicate pain, a protracted disease and relapses.”

When in the course of the lectures on medicine we come to study the elaborate and beautiful thermometrical tables of Parkes and Wunderlich, you will be strangely reminded of these early statisticians.

I have no doubt that these calculations were based on actual observation, and that they were perfectly trustworthy as applied to the maladies of that country and of that age.

That they were founded on unbiassed records is still more evident when we take into consideration their more universal

maxims or generalizations, which even through these many centuries appear to us the clearly-moulded impressions of facts.

Nothing for example can be juster than their classification of diseases into acute and chronic, mortal and curable ; than their division of the duration of a disease into the ἀρχή, ἐπίδοσις, ἀκμή, χάλασις, the occurrence of the κρίσις, or judgment of nature after the acme.

Throughout the whole of the extant works of the great Physician whom I take as their representative, there breathes a spirit of caution, of profound respect for Nature, very different from the pedantic conceit of knowledge which treats of the attenuated, or crass or concocted humours, as if the human organism were an apothecary's mixture, to be diluted or concentrated at will ; very different from that murderous audacity of later days, that boasts of jugulating an inflammation. Hear what the Greek Physician says of Cathartics in his 24th Aphorism : " Use purgatives sparingly in acute diseases, and at the commencement, and with circumspection."

In the 42nd : " It is impossible to remove a strong attack of apoplexy, and not easy to remove a weak attack."

In the 38th of the 6th section : " It is better not to apply any treatment in cases of internal cancer, for if treated the patients die quickly, but if not treated they hold out a long time."

In the hands of Hippocrates, rest and diet were the chief weapons in the treatment of acute diseases.

On the influence of rest in the cure of disease, he perhaps had clearer convictions than any physician in any age, until a few years since Mr. Hilton published his lectures on the subject : " In every movement of the body," says Hippocrates, " when one begins to feel pain, it will be cured by rest."

It is in his book, Περὶ Ἀρχαῶνς Ἱητρικῆς, " concerning ancient

medicine," that he asserts most distinctly the importance of dietetics. In his speculations as to the origin of the art of medicine, he argues that the first step was the substitution of cooked, ground, and selected food for the raw flesh, corn and roots, with which the primeval savages satisfied their hunger; he quaintly enough supposes that some one human creature, wiser and more sensitive than his brethren, and objecting strongly to the violent stomach-ache that followed each meal, luckily hit upon the expedient of roasting or boiling, and so he says a little later, it was found that sick people suffered as much inconvenience from ordinary cooked food as their forefathers, even when healthy, had suffered from what was uncooked, and for this solid food soups were substituted.

Again, in the more acute diseases, even soups were not well borne, and their place was accordingly supplied by still simpler and lighter drinks; among the lighter drinks would naturally occur many of the simple vegetable diuretics, sudorifics, and relaxants.

The natural character of this conclusion is evident, and in following out similar principles, guided by a cautious experience, the Asclepiadæ arrived at that salutary practice of medicine, of which we in the 19th century are compelled to speak with respect.

Even in the time of Hippocrates, however, these simple rules became distasteful to men's minds.

In the treatise *Περὶ Ἀρχῶν* *Ἰητρικῆς* (already quoted,) "concerning ancient Medicine," he speaks contemptuously enough of the new method of those that practised their art by hypothesis. It seems that these professors instead of remedying certain symptoms by the diet and medicaments that simple experience had shown to be efficacious, divided diseases according to their most obvious characteristics into hot and cold, moist and dry. Having thus classified the diseases, the next step was the supposition, natural enough, that the

hot symptoms would be relieved by cold remedial agents; the moist by dry, and so on; and following this train of speculation they classified these agents in a more or less arbitrary manner according to their possession of one or more of the four qualities.

The great master, with a sagacity beyond his age, saw the fallacy clearly enough. "I cannot think" says he, in the 15th section, "in what manner they who advance this doctrine and transfer the art from the cause I have described to hypothesis, will cure men according to the principle which they have laid down, for as far as I know, neither the hot nor the cold, nor the dry nor the moist, has ever been found unmixed with any other quality." In other words, Hippocrates saw that heat and cold were not essential elements either in the disease or the remedy, but merely simple phenomena dependent on multiple and complex causes in the then state of science unknown, and unknowable.

This antique theory is worthy of attention; foolish, inane, childish as it may seem to-night, it is worthy of a deep analysis, for not only does it survive in the practice of this very day, but it is the prototype of all the fallacies of medicine past, present, and to come; it is one of the first fruits of that baleful mental process, which in general science went on century after century, burying the few facts that we were possessed of under stratum after stratum of foolish and monstrous fables, until scarcely three hundred years ago, when the powerful mind of Bacon refused to be any longer driven with the blind and helpless herd of schoolmen, and turned back alone to the source of all sciences, which in medicine has gone on doing an amount of injury positive and negative, almost incalculable up to the time of men still living, when it has culminated in Hahneman and Homœopathy.

I purpose therefore to examine this poor forgotten corpse of

a theory, and having exposed the pernicious element of unreason that lies within it as yet unhatched, and comparatively harmless, like the ovum of a deadly parasite, to trace it as far as our time will admit through the medicine of the past. So I shall answer the first part of the double problem.

Now, most evident on its surface, is that error of mistaking the signs of a disease for the disease itself, of mistaking the reflection for the reality, as a savage or a dog does when he first sees a mirror. To bring the matter home to ourselves in a phrase that one often hears now-a-days of treating symptoms. This source of fallacy is important, historically and practically, for more or less it has influenced the treatment of the past, and while there still exist physicians who treat, as they call it, the cough of phthisis or the pyrexia of an internal inflammation, it cannot be said to be alien to the present.

This, however, is not the *fons et origo mali*.

Again, a second of the cardinal sins of medicine is latent within the narrow space of these few sentences, the attributing an actual existence or entity, as the logicians say, to what was originally a mere abstraction; that is a property or group of properties separated by a mental process from the other properties, which when combined form the complex idea of the thing in question. Thus their idea of a fever would be made up of those obvious signs of disturbance which most easily excite the notice of an observer, the sensation of heat, objective or subjective, the violent motion of the blood and the thirst.

Naturally and properly, they might abstract these phenomena from the rest, as we do now when we make observation on the range of temperatures in the different fevers; unfortunately they went further, and attributed an actual entity to this *pyrexia*, thinking it was a thing capable of existence *per se* apart from the organism in which it was manifested.

If instead of an introductory address, I were delivering a course of lectures on the history of human error, I might trace this curious mental process through almost every branch of human learning, dividing the heavens into imaginary regions, drawing circles round the earth, bestowing souls not on men only, but on animals, and trees, and precious stones, and at last during that great *logomachy*, that *Armageddon* of human talk between the realists and nominalists, creating such a rancorous, brazen-tongued uproar among the schools of Europe, that only the still louder hubbub of the reformation could assuage. I might expose it still flourishing in the dark places of our own minds, injuring our scientific nomenclature by such expressions as electric or magnetic fluid, still exhibiting the strange spectacle of the worship of such foolish idols as vital force, *nisus formativus*, and *vis plastica* in the very temple of knowledge. But it will suffice to indicate it in the eliminative practice of our own art, to point to a London Physician at this very moment, trying to draw out the imaginary *materies morbi* of acute Rheumatism by a series of blisters.

But this is not all.

Again, a third element of evil demands a few words. The belief so evident in this system, that all diseases may be destroyed by medicines, as a poison by its antidote, a belief most natural, and held by many as the key to the discovery of medicines; a belief most natural and pardonable in those early times, but, alas! how to be spoken of now. Now, when we know so well on what complex, slowly-acting processes diseases depend; now, when there are found what are called educated men to prescribe, and what are called educated, intelligent people to swallow a few grains of some drug or other, for the cure of profound lesions of nutrition, such as phthisis or cancer.

What are we to say, but that intellectual progress is confined to the few, that while the difference in the scale of

mental development between a modern philosopher—such a man as Faraday, or Huxley, or Owen, and the philosophers of the time of Hippocrates, is very great, and *a fortiori* of such a philosopher and of the common credulous herd who consulted oracles, and worshipped the dissipated deities of the Greek Pantheon, the mental status of the laity is scarcely altered. Indeed, I am by no means sure, that an Athenian bourgeois of the period would not have felt deeply injured if he could have foreseen himself compared with a race, among whom Spiritualism, Ultramontanism, and Quackery flourish with such marvellous exuberance.

But again, this is not all. I shall now unmask to you an element of error, of delusion, and folly of far wider significance, of far more general application.

I mean the deduction of inferences from generalizations, which had no foundation save in the busy brains of their inventors.

The facility of believing that the same relations as to cause and effect, which may exist between phenomena in our own vain imaginations, exist really in the material world around us.

The facility of believing, the proneness to act on the belief.

To the undisciplined minds of the founders of this theory, the few facts in the natural history of diseases then known, easily ranged themselves in the four categories I have spoken of, and no sooner had this been effected, than all that could be predicated of hot or cold, moist or dry, was predicated of them. Only let a fact get into the minor premiss of a syllogism, and it is beyond the reach of all power human and divine.

My master in this art used to repeat again and again this dictum: "The savage explains; we investigate."

A philosopher investigates the causes of a phenomenon, a savage explains it by the aid of his grotesque imagination, and wonders and believes; but your pseudo thinker, your

begetter of illegitimate hypotheses, examines it with the air of Hogarth's periwigged charlatan inspecting a urinal, or his Siderophel, star-gazing at a planetary conjunction, examines it through the most chromatic lens of his preposterous pride of intellect, and like the celebrated German who evolved a camel out of the depths of his moral consciousness, invents a law, or half a dozen laws, for they are by no means sparing of the commodity, invents it, and then not only acts upon it, but sells it more or less dearly to his unhappy fellow creatures, oftentimes for gold, often for honour, often for fame that outlives for centuries the memory of the honest worker, into whose presence he was not worthy to enter on his knees.

Looking down the long vista of the history of human learning, how many of their faces can I see looming impudently through the mists of time past, huge, brazen, shameless, like Anubis, the dog-faced idol of the Egyptians. How endless the variety of their cheating arts.

Now Swedenborg, with his affectation of scientific precision, parading his abstruse mathematics, his treatises forcibly suggesting a figure out of Euclid, strangely adorned with arabesques and mediæval diableries. (A most common trick by the way among these hypothesis mongers, who exhibit their bits of mathematics, just as the poor quack at the village fair displays his couple of skulls, and his two-headed kitten.)

Now Paracelsus, whom like a Bow-street magistrate, we refuse to pardon because he was drunk.

Now Hahnemann, whose sentence we commute, because he was mad.

Truly an unholy mischief-making race of men, useless, and worthy only to be classed with

“Ambubaiarum collegia, pharmacopolæ,
Mendici mimæ balatrones hoc genus omne.”

It is always in those pauses of the great march of inductive science, that Whewell has described so well, that these

unhealthy hypotheses like base coin in troublous times get into circulation. Their authors are forgers in the vilest sense of the word, and by negligence of the teachers of the people escaping the triple ordeal by the touch, the balance, and the fire, by which every theory should be rigorously examined, they go forth into the world, to honest thought bringing unspeakable ruin.

As beneath the receiver of an air-pump, a sere and wrinkled fruit grows fair and large, so in times of intellectual vacuum, these inane and withered apples of thought swell into the semblance of true Hesperian fruit.

In the actual organic world, it fortunately happens that monsters, hybrids, and untimely births soon perish, seldom existing long enough to reproduce their defects and deformities. If it were not so, how unbearably hideous the animal population of the earth would become is easy to be imagined.

A night-mare thought it is, to galvanize into life the creatures in their tombs of glass and spirits of wine, that adorn the shelves of our museums of teratology, to suppose them able to increase and multiply.

But no such law of death to the imperfect, exercises its salutary influence on the misbegotten products of the human brain, and we shall see when we pass in review a few of the most remarkable hypotheses that have influenced the medicine of the past, that like the fungus called *Thallus Impudicus*, which grows in a single night from a single cell to the size of a man's head; these ignoble growths increase and multiply with fearful rapidity.

Let us cause to pass before us some of the ringleaders among the promulgators of false hypotheses, each one bearing his theory, as in the *auto da fe* the victims bore each the distinguishing badge of his offence.

While the ashes of the great Hippocrates were still warm in their urn, a tribe of that pernicious race of parasitic vermin

called commentators, fastened upon his writings. All commentators on authors are bad, since it is evident that, if a master is not sufficiently clear-headed to be intelligible, the sooner he is forgotten the better.

Every man who sets himself up to teach, and either from the incurable confusion of his brain, or from a cunning design to conceal his ignorance and gain a reputation of superior wisdom, deals in mystical and ambiguous expressions, such as admit of commentaries and expositions, is a priest of Belial, and worthy to be stoned as a vain person a troubler of the peace of the people.

But the commentators of Hippocrates appear to have been peculiarly mischievous, for they have fathered so many false treatises upon him, and interpolated so many of their own ideas into the very structure of his writings, that we need the critical skill of a second Niebuhr to select the fable from the truth.

Whether Hippocrates actually committed himself to the hypothesis of the existence and influence of the four humours, black and yellow bile, blood and phlegm, I for my own part very much doubt; but a very few years after, the theory of humours had grown wonderfully, for I find that Praxagoras, who was also an Æsculapian of the Island of Cos, and who was born a few years before Aristotle, taught the existence of no less than ten humours *besides* the blood.

After him the Physician Petron passes before us; he seems to have been the originator of the hydropathic hypothesis, for I find him covering up his fever patients beneath mountains of clothes, and plying them with copious draughts of cold water to induce perspiration. Only he added to this the remarkable plan of feeding his convalescents with swine's flesh and wine.

Chrysippus, of Cnidos, must have been the ideal of a theoretical practitioner, for Pliny says of him in the 24th

book of his Natural history, "*Horum placita ingenti garrulitate mutavit*," he changed the opinions of these, that is to say the Clinical or Hippocratic physicians, by his huge garrulity.

Next to him comes Eristratus, the author of that most deadly of hypotheses, the doctrine of local plethora, a man therefore blood-guilty in the widest sense of the word; yet, strange to say, he repudiated venesection and cathartics, confining himself for the reduction of hyperæmia to fasting and exercise. Indeed, he seems to have been paradoxically cautious and rash, for while according to Cœlius Aurelianus—" *Jecorosis incidens*," cutting down to the livers of patients suffering from hepatic disease, he applied medicaments to the organ itself; he religiously abstained from drawing teeth that were not loose, telling his disciples with admiring approval, that in the Temple of Apollo, there was to be seen a tooth forceps of lead, implying that no greater force than could be applied by so weak an instrument was to be used.

Whether to treat of Herophilus the author of the doctrine of Pulses, and the first of the dogmatic sect, as one cumbering the weary world with a new theory, or as really systematic observer and recorder, I am not certain. Pliny says of him that he reduced the variations of the pulse to a system of modulations and harmonies similar to the law of musical vibrations, but that his system was soon neglected on account of its too great subtlety; if so, he must be condemned: but Pliny is such an Ananias among authors, that we are at liberty to believe him or disbelieve him as we choose; and from other considerations I am inclined to acquit Herophilus.

Shortly after his death, the rapid and increasing growth of hypothetical medicine received a temporary check from the formation at Alexandria of the Empirical School, unfortunately a temporary check only, the exuberantly flourishing tree was pruned, not cut down. From the manifesto of

Serapion, the founder of the sect, great things might have been expected; according to him the conclusions of long chains of argument, founded on principle, that were themselves the results of other chains of argument, were no longer to dictate the Physician's practice, but experience, personal observation, *τῆρρησις* as they said.

Experience, aided however by the study of cases faithfully recorded by reliable persons, and by a kind of reasoning which they call *ἀπὸ τοῦ ὁμοίου μετὰ βᾶσις*, 'or analogy. This programme sounds well, but unhappily the speculations of their predecessors had taken so deep a hold on men's minds, that experience in the strict and scientific meaning of the word was no longer possible. The very vision by which they observed was distorted by preconceived ideas; they examined not the actual phenomena of disease, but arbitrary signs, whose importance was derived from false reasoning—and instead of impartially testing the value of remedies, physicians only sought for opportunities of proving the power of this or that nostrum. That this was the case, a moment's inspection of their pharmacopeia is enough to assure us. I find that for epilepsy, the crusty warts on the forelegs of horses, the brain and gall of a camel, the testes of a cock or a boar, and the dung of a land crocodile, are enumerated as specifics.

Such has always been the case in the history of medicine; from time to time, men of honest and practical minds have revolted against the therapeutical teachings of the schools, and have professed to fall back upon their own experience. One hears every day in the profession, and still more frequently out of it, such expressions as this, "I know that such and such a remedy does good, because I have seen it with my own eyes, and no amount of argument will convince me to the contrary." Yet such common sense evidence, as it is called, is absolutely useless; it may be collected like the *alibis* in the

old law courts in any quantity in support of the powers of any nostrum, no matter how preposterous. I should as soon think of preferring the evidence of my senses to that of a thermometer for graduating the temperature of a fractional distillation, as of allowing such an opinion to influence my scepticism in any point of therapeutics. The only experience of the slightest value for the advancement of therapeutics, is that methodically collected by scientific observers, whose intellects are trained to estimate the value of signs and symptoms as accurately as a judge estimates the contradictory evidence in a law suit, or a merchant the value of the wares which it has been his education to understand.

This being the case, it is not wonderful if sometimes one answers such assertions :

“Smiling as a master smiles at one
That is not of his school, nor any school ;
But that where blind and naked ignorance
Delivers brawling judgments unashamed,
On all things all day long.”

The establishment of the empirical school then failed utterly to arrest the progress of hypothesis. What the state of the science was at the time is amusingly illustrated by a little episode which occurred at Rome, where at this time a rude, simple, and primitive practice prevailed. Archagathus, a Greek physician, came over from the Peloponnesus; he was at first received with the greatest honour by the simple Quirites. They gave him the freedom of the city, at their own expense furnished a shop for him in the Via Accellia, and soon afterwards conferred upon him the honourable surname of *Vulnerarius*, or the healer of wounds. What the particular practice of this gentleman was, I cannot say, but his surname was in a few months changed from *Vulnerarius* to *Carnifex*, or public executioner.

Æsclepiades next, this is he who promulgated the remarkable hypothesis that the human body consisted of *ογκοι*, atoms

which moved freely and harmoniously through intervening spaces which he called *ποροι* or pores. So long as this movement went on easily and without friction, perfect health was preserved, but when the molecules became locked together and blocked up the pores, phrensies, lethargies, and fevers ensued.

Again, from undue enlargement of the pores, another class of diseases deliriums langnors, dropsies arose.

His treatment, the corollary of this hypothesis, consisted of friction, carriage exercise, or gestation of various kinds, and the use of wine.

This physician, who made a great reputation at that time, seems to have been quite a man of the world, and like the fashionable physicians of our day who prescribe with such unction a glass of Madeira, or a few weeks at Baden or Mentoni, made it a point to please his patients if he did not cure them.

What seems beyond all measure to exasperate the old author from whom I have learned of him, he gave wine in the delirium of fevers, and treated alike the theories and drugs of the time with the deepest contempt. I do not think that his molecular theory much influenced his practice; in those days a hypothesis was as necessary to a physician as a brass plate is in ours, and *Æsclepiades* selected this one as being as good as another. He was an Atheist, and a Materialist, pure and simple, holding that the effects of matter and motion sufficiently accounted for all the phenomena of the universe. And here it will relieve my mind until what time I can finish my book on the wisdom of the ancients, to observe, that I think it very hard when some new conclusion in physics or physiology is arrived at, after a long and patient induction, that people should point out that something of the kind had been hinted at two or three thousand years ago. I think when we consider how for hundreds of years, hundreds

of idle Greek philosophers, with nothing better to do, sat in their porches and academies, chattering and guessing all day long, it would have been something like a miracle if at times they had not guessed something near the truth.

After the Atomic theory of *Æsclepiades*, the next to which we must spare a few words is that of *Themison*, the founder of the Methodic sect. This is that *Themison*, of whom *Juvenal* speaks in his satire on the value of human wishes—“*Quot Themison ægros auctumno occiderit uno.*” The hypothesis of the Methodics was this, that all diseases depended either upon stricture of the tissues, or on too great relaxation, or on something between the two, (what that something could be it is a hard matter for a plain man to conceive.) All diseases depending on these two conditions, the remedies were obvious: all that had to be done was to provide competent relaxants and astringents. Blood-letting, especially by leeches, was the chief agent for producing relaxation. It is easy to understand to what lengths this system might be carried, and with what fatal effects; in all probability *Juvenal’s* sarcasm is a just one.*

The *Episynthetic* and *Eclectic* schools contented themselves with combining or selecting from the hypotheses of others; and I do not know that the hatching of any fresh ones can be laid to their charge.

*About the time of *Themison*, leeches were first introduced into medicine. The discovery of their medicinal application is said to have arisen from the observation that certain peasants who were accidentally bitten in the feet by them, received benefit from the operation. *Pliny*, in his natural history gives a more curious but equally improbable account of the discovery of venesection in the 8th book of his natural history.

Hippopotamus in quadam medendi parte etiam magister extitit. Assiduâ namque satietate obesus, exit in litus recentes arundinum cœsuras speculatus atque ubi acutissimum, videt stirpem imprimens corpus venam quandam in crure vulnerat, atque ita profluvio sanguinis morbidum alias corpus exonerat, et plagam limo, rursus obducit.

But the hypothesis of the Pneumatic sect founded by Athenæus, and best represented by the eloquent Aretæus, whom one grieves to find in such company, has a bad pre-eminence from its intrinsic absurdity, and from its strange and persistent vitality; these held with many of the philosophers, that besides the four recognised elements, earth, air, fire and water, a fifth existed called the *pneuma* or spirit. This is the ætherial essence of which Virgilius speaks in that well-known passage of his fourth Georgic—

“Esse apibus partem divince mentis et haustus.
Ætherios dixere.”

And according to the Pneumatics, this was the occult cause of all the phenomena of the animal organism. Thus Athenæus: “The pulse is no more than a motion produced by the dilatation of the spirit contained in the heart and arteries, which spirit moving of its own accord, moves at the same time the heart and arteries.” Not only was this *pneuma* the inner cause of life, and the etherial go-between of the soul and the senses, but to its perturbations, all diseases were due. At one time it was congealed, at another melancholic and morose. It was to be soothed by baths, conciliated by grateful odours, or brought into subjection by nauseous drugs. I might devote a whole lecture to the strange medical romances of which it was the hero; suffice it to point out, that it appeared again in after times under a new name, as the *Archæus* of Van-Helmont, and still preserves a precarious existence under the auspices of our modern Spiritualists, and the wandering professors of Electro-biology.

It was in the brain of Galen, however, born at Pergamos, in the reign of Hadrian, that the evil seed of hypothesis grew, flourished, and bore its richest fruits. Looking into the Galenical treatises, one is uncertain whether most to wonder at his extraordinary powers of synthesis, or extraordinary incapacity for analysis. He built up with the wretched

materials collected from the authors whom I have been treating with such disrespect, and from his own imperfect observations, a system truly marvellous for its subtlety of detail, and completeness of general arrangement, and yet succeeded in reducing to its true elements no single phenomenon of disease. When I examine his system, I grow almost dizzy with gazing into the concentric vortices of his classification, circle within circle of complex ideas, each more subtle than the last; and yet in all his treatises, I doubt whether I could find a single observation that could be of service to me in my daily practice.

To illustrate these remarks, let me bring forth into this modern gas-light a few of the doctrinal creations of this busy brain, now so long hidden in silent death.

Not a little curious is his doctrine of Idiosyncracies. Starting from a typically sound and perfect constitution, he described eight inflections or rather declensions. The first of these he termed the præternaturally hot temperament; in the next, the excess of one of the properties; cold, moisture, or heat, was the characteristic, in the remaining four, a compound condition obtained, they were too hot moist, or too hot dry, too cold moist, or too cold dry; every one possessed one of these constitutions, which constituted his idiosyncrasy, and Galen professed to adapt his treatment accordingly. Again, his doctrine of spirits is curious. We have seen that the Pneumatic sect believed in an all-pervading pneuma or vital aura. Galen not satisfied, elaborated this into three, natural, vital, and animal. The first or natural spirit arose in the liver, passed, I suppose, by the inferior cava to the heart, and then having been churned up with the air that entered by the lungs, became the second or vital spirit, and finally entering the brain was there converted into the most elaborated kind of spirit, the animal.

These three spirits, moreover, were the agents of the cor-

responding faculties, natural, vital and animal. These three faculties again presided over the three functions, the natural, the vital, and the animal. The whole arrangement forcibly reminding one of the ancient poem which begins, "This is the house that Jack-built," and arrives at an almost equally profitable conclusion.

Once more listen to his ideas on the etiology. The causes of disease he divides into two primary classes :

- (1) The external or procataretic.
- (2) The internal.

The internal he divides again into two.

- (1) The antecedent.
- (2) The conjunct, or as we say, efficient.

So far, so good, but this is not all ; he divides his antecedent causes into two classes, according as their essence is a cacochynny or a plenitude of the humours ; now of plenitude there are four kinds—sanguine, bilious, pituitoris, and melancholic ; and again there are two different relations of each of these, their relation to the humours themselves, and to the vital power of the individual, and so on.

I cannot give you a better insight into the mental condition of a physician of the period, than by quoting an observation of Galen himself. He is severely condemning his master Pelops for some erroneous doctrine on the *modus operandi* of powdered crawfish in hydrophobia :—"My master Pelops," he says, "attempting to account for the effects of crawfish in this disorder, pretended that it was useful, because it was an aquatic animal, and because the disorder depends upon an excessive dryness, which produces a dread of water in those affected with it ; he added the river crawfish was more proper in this distemper than that of the sea, because these latter partake of the salt with which the sea water is impregnated, and which is of a very dry nature ; but some one having started this objection to him, If what you advance be true,

whence comes it that all aquatic animals are not equally proper for this disorder? He answered, that it was because they did not all admit of the same preparation with the crawfish, the shell of which may be reduced to ashes, which being of a drying nature, it consumes and absorbs the poison which creates the disorder."

Nor can I do better than devote the remainder of this sketch of the hypotheses of the ancients, to this sensible remark by an old author:

"All these theories, however, or any of them, may be very usefully applied to one very good purpose, which is to satisfy the impertinences of some certain querists and old women, whether in petticoats or breeches, for there are many people so delighted with the extraordinary and marvellous, that they are never satisfied with what they comprehend, but require something sublime and unintelligible, which though it may not satisfy their doubts, confounds their ideas and exercises their imaginations, in which they find something as it should seem superlatively agreeable."

After the epoch of Galen, medicine remained stationary for many centuries. It seemed as if the human race after creating and fashioning this monstrous idol, had fallen back in awe and wonder at its handiwork, and had continued worshipping it until it fell to pieces by its own innate corruption.

The Arabians, it would seem, did nothing but translate, and that very badly, Galen and his predecessors.

The Schoolmen did nothing but wrangle about him; and in the sixteenth century, mankind in the person of Paracelsus, burnt his treatise ignominiously with fire.

It is said that the chemical or rather alchemical medicine of the 15th and 16th centuries, took its origin from the symbolical nomenclature of the Arabian Metallurgists, who writing of the process for refining the precious metals, called different fluxes medicines, the ores sick men, and the pure gold a healthy man.

With regard to the use of Antimony, however, it seems that Basil Valentine was led to introduce it into medicine by that process of reasoning, which, as we have said, the Methodics named *epilogismus*.

This is the story: Some antimony which he had used in an alchemical process was thrown away, and lying on the ground outside his house, was eaten by a herd of pigs; he observed that they were at first violently purged, but afterwards grew fat, and so he was led to experiment on the human animal. Better would it have been for the human animal if these ill-omened pigs, like another herd of swine we read about, had rushed violently down a steep place into the sea.

The use of Mercury again in the syphilis, which appeared about this time, would very naturally be suggested by the similarity of the syphilitic eruptions to the parasitic cutaneous affections in which the Arabians employed it as an unguent, and considering its undoubted power of causing secondary symptoms to disappear at least for a time, it is easy to understand the effect that such cures would have on men's minds in exalting its value.

But in Paracelsus and his school of chemical physicians, the mania of hypothesis broke out with redoubled virulence—I use the word *virulence* advisedly and with a purpose, for these chemical hypotheses resulted not in the comparatively harmless venesections and purgations of the Galenical medicine, but in a wholesale poisoning of the European nations—such, that its effect on their health and development never has and never will be estimated. How far the various new skin diseases that vary the monotony of our wards, like grotesquely-coloured pictures, depend on the combined effect of the unlimited and indiscriminate use of Mercury, and the syphilitic lues at this period, it will never be known.

As Paracelsus, in his doctrine of the *Microcosm*, sees in man the representatives of all created things, planets, plants and

animals, so in the teaching of this typical dreamer, I might find examples of all the kinds of delusive philosophizing to which I have alluded. The man himself stands out vividly before us from the story of the past, a man of immense physical energy, travelling over half the world with an insatiable hunger, if not for knowledge, yet for the power of knowledge, gathering from priests and sorcerers, old women and barber-surgeons, Arabian physicians and crazy fakirs, scraps of learning, secrets of projection, nostrums, charms, talismans, drugs, and herbs.

A man naturally possessed of a robust common sense, easily detecting the inane folly of the Greek-Arabian or scholastic sciences, publicly exposing it in the pillory of his lecture theatre, loudly, savagely vituperating it and its professors dead and living, with formidable, coarsely truculent, high Dutch sarcasm in his scurrilous scorn.

A man of prodigious vanity, not sparing to bespatter with bitterest insult whosoever dared to undervalue him or his secrets, no matter how powerful or how venerable; a man of violent passions, indemnifying himself for the richer sensualities which an early misfortune denied to him, by an unbridled indulgence in the pleasures of wine. It is not surprising that such a man became a sign and a wonder in his credulous age, nor that for the last few years of his life he wandered forsaken, alone, constantly intoxicated, his brain so softened that he forgot his very Latin, and at last, long before his time, died miserably in a tavern. No wonder that in such a brain hypothesis should breed hypothesis. No wonder that his imagination with such a crude, vast and various material should produce the phantasmagoric show that has come down to us as the medicine of Paracelsus.

One example will, or rather must suffice. "All nature," says he, "consists of three elements—salt, sulphur and mercury: thus when wood is burning, that which burns is sulphur, that

which rises in smoke is mercury, that which remains is salt." Is it possible to conceive a more impudent, unblushing lie; but wait a little until we see him build an hypothesis upon it. "The human body then consisting of salt, sulphur and mercury, all disease depend upon the actions of these three elements; thus mercury by its volatility causes madness, mortification of the tendons, delirium and phrensy.

"Sulphur produces the various kinds of fever, phlegmous and jaundice.

"From salt arise colic, stone and gravel, sciatica and gout."

For these chemical diseases a chemical remedy is at hand. This he calls the quintessence or philosophical tincture, or the ætherial tincture, for it has many names, and it is hard to distinguish in the writings of Van Helmont, from whom I learn what I know of this, whether the quintessence is the same thing as the alcahest, the universal solvent and *ens salium* of which he treats; it is certainly not possible to ascertain it from the different processes which he has given for its preparation. I have often laughed to myself when reading these receipts, to think of the poor Sir Epicures who tried to follow him, boiling, frying, distilling, and sublimating mixtures of sea water, sulphur, bones and nitre, that in the nature of things could not possibly eventuate in anything but the consummation which Thackeray describes in a different drama:—

"Till he blew his silly brains out,
And by it no more was troubled."

However, whatever it might be, it was a wonderful remedy, for he goes on to say, "I myself have with this remedy which is an invisible fire, and devours all diseases, cured the small pox, the leprosy, the dropsy, the colic, the apoplexy, the cancer, fistula, and all internal disorders."

Such was the man, a mind so swift to perceive resemblances, so indolent to test them. With him I close this review of the false hypotheses of medicine, not because his

were the last; far otherwise, for from Harvey's discovery of the circulation, still later from Prout's chemico-physiological and Galvani's electro-biological researches, there have sprung up mechanical, chemical, and electrical theories, that still disfigure the science of medicine.

I have seen driving to and fro, through London and Brighton, in Bigæ or two-horse chariots, men who rely for the deceiving of themselves and their patients on the hypothesis of the crazy German, who, to quote Pereira, "devoted no less than forty-five octavo pages" to the description of the 720 symptoms produced by the one-millionth part of a grain of vegetable charcoal, among which are—itching of the internal angle of the left eye, itching in a wart on the finger, repugnance for butter, obstruction of the nostril for an hour, speedy loss of appetite from eating, and many others, some of them filthy and obscene.*

Again, I venture to say, that the hypothesis accounting for inflammation, which one finds with the stereotyped web of a frog's hind leg prefixed to most of the current handbooks of medicine, is as clumsy and groundless as any of the vain imaginations that I have described.

But I have said enough to demonstrate the evil effects of unchecked theorizing, and to answer the question, Has there been until lately a Science of Medicine?

And now a few words in answer to the second part of the problem: Have we at the present moment a Science of Medicine?

I am prepared without a moment's hesitation to affirm that we have.

If the style and title of Science is confined to those branches of learning which consist of a certain number of generaliza-

* I must say here, however, in justice to poor Hahnemann, that his was the first, and until lately, almost solitary attempt at a systematic observation of the effects of remedies.

tions or laws, accepted as indubitable, from which by a simple syllogism or chain of syllogisms, or by a calculation, one may predicate with certainty the modes and results of the actions of whatever comes within the sway of these laws; it is vain to seek such a science from the lecturer on medicine, nor do I know of any such beyond the pale of mathematical knowledge.

The Chinese Physicians, if we are to believe their professions, have such a science, for having examined the pulse of a patient, they refer to their great book of pulses as one would refer to a dictionary or a table of logarithms, and at once without further trouble, read off as it were the disease, prognosis, and treatment.

Such a science would be like a rhombohedron of carbonate of lime, absolutely perfect and complete, but also inorganic—dead.

By a kind of paradox, when a science arrives at this perfection, it becomes an art. There is no room for investigation, for analysis, for speculation, those exercises in which the highest intellects take their supreme delight; all is reduced to a few simple rules as uninteresting as those of multiplication or division. But in the ordinary acceptance of the term, as applied to chemistry or zoology, I unhesitatingly claim for medicine the name of a Science.

I am aware that in these latter days, there are many who, influenced by a miserable indolence, or still more miserable ignorance, have spoken sneeringly of medicine, have spoken of the expectant method as though it were the hopeless goal at which medicine had at length safely but ignominiously arrived; who terrified at the sound of the falling Dagons of theory, have thought in their hearts that the temple of medicine which these idols have polluted so long, was itself falling. Scepticism, that clear-eyed angel of light, has indeed entered the temple but to lustrate, not to destroy.

As a bright light brought into a room where a magic

lantern is displaying its brilliantly-coloured pictures, makes the parti-coloured show fade and disappear, but at the same time makes visible the whole scene and the many faces of the spectators, so the light of knowledge, while it destroys the false, brings out, develops as the photographers say, the three times more wonderful—truth.

Every science has four distinct ages: first, the simply empiric stage; then the period of elaboration and accumulation always resulting in a highly complex, highly systematic, and at the same time useless and error-laden structure; then the stage of scepticism and ruthless destruction; lastly, the age of reconstruction.

Take history, at first consisting of simple memoirs, then of systematic and compendious treatises, who among us does not remember the Pinnock's Goldsmith of our school days, where the story of Rome passed before us, lucid, complete, from *Æneas* of Troy, to the Constantines. No flaws there, no troublesome German critics making our hair stand on end with impious doubts about the seven kings, who shared the 240 years amongst themselves with such commendable impartiality.

Then comes the period of revolution and doubt, where we have to look doubtfully on and speak delicately of our ancient acquaintances, not knowing but that the hero whom we had worshipped for years might turn out to be a coward or a murderer; or the monster of tyranny with whom we had garnished our expressions of scorn and abhorrence, might be suddenly revealed to us as a model of goodness, and look upon us with the reproachful eyes of a sainted martyr.

And now at last, within these few last years, we have seen the dawn of a Science of History.

I, myself, have seen with my own eyes the Science of Chemistry pass through this crisis, have seen the long rows of so-called rational formulæ crumble to pieces in my very

hands ; the pages and pages of classification and theory which I had learned with months of labour, broken up like the plates of stereotype, and thrown back into the melting pot ; have sat on the benches of a lecture theatre, with sorrow I speak it, where the first toxicologist of the day has held up to ridicule the teachings of his colleague, compared with whom he might be more aptly styled an alchemist than a chemist.

In Medicine we are now just passed through the same stage. Strewn on all sides are the ruins of the lofty but fragile mosques, the picturesque pagodas, and cramping, light-excluding walls of the past ; but the new foundations are laid deeply and well, the materials are collected, assorted and arranged, and with a good heart we have commenced to build the fair edifice of the future.

In a few words let me justify this confidence.

For the first time since the days of Hippocrates, we have escaped from the influence of false and artificial nosologies.

Our classification now, if it is not an exact reflection of nature, if our facts have not, converging to their several foci, like the pencils of light from the lens of a camera, produced a perfect image, still has no false pretensions ; unlike those of the past it admits of unlimited change and re-arrangement ; it presents us with its facts ready at hand at a moment's notice, like the colours spread on a painter's palette.

Our natural history consisted of an immense mob of facts which had been accumulating for centuries, but only within the last fifty years has it begun to fall into rank and file.

Clinical investigation is now on a par with the systematic investigations of other sciences. A clinical report no longer consists of a picturesque story of the most prominent and strange signs and symptoms, interesting in a direct ratio to their singularity. It is a tabulated record of phenomena, which as our means of observation improve, exhibit more and more of uniformity.

A properly reported case, say of acute rheumatism, should furnish data for at least four of those curves, which in the hands of the meteorologists are reducing the chaos of wind and weather to simple order.

Two daily notes of the pulse, the number of respirations and the temperature, and one of the quantity and specific gravity of the urine taken by a clinical clerk, furnish a material more valuable than all the graphic descriptions of the eloquent Aretæus.

Material not only so valuable as a step in the progress of our science, but valuable to the practical physician at the bed side. A flush, a stimulus of mental excitement, the subjective evidence of a sanguine patient, even one's own condition of body or mood of mind may deceive us into false hopes, but there is no cheating the inevitable rise and fall of the thin line of quicksilver in the graduated tube.

Again, how different must be the frame of mind of the physician, who bearing in mind the unchangeable law which describes a downward curve of one and twenty days in a typhoid, or of fourteen in a typhus, can watch without dismay day after day the terrible descent, knowing that the upward process is as surely at hand as the upward swing of the pendulum follows the downward; who graduates his stimulus to the rate of descent as carefully and exactly as the guard in a break-van when his train is passing a decline; how different from his, who seeing only behind him, times his treatment by the urgency of the moment, and terrified by the unchecked advance of the disease, now tries one desperate method, now another.

To pass from classification and the natural history of disease to pathology and etiology: Here I see still deeper foundation for our confidence. As far as ordinary morbid anatomy is concerned, I mean the visible condition of the organs in disease, I may almost say the subject is exhausted.

Not to speak of the great works of the German pathologists, I can lay my hand on the work of a single English observer, I refer to Dr. Wilks, and find in it a record of the morbid appearances presented by nearly every known disease, a record which will be as valuable and as true a thousand years hence, as it is this hour. For it is a picture drawn by the firm hand that no theory can make to swerve, from nature herself, seen through the clear eyes that no hypothesis can deceive.

Chemical and microscopic pathology still presents us with great tracts of unexplored country. Of both kinds of research the difficulties are immense. The progress is sure and slow—sure and slow because that merciless scepticism which is the very palladium of modern science, allows no single observation, much less theory, pass into currency before it has endured the ordeal of a thousand microscopes or a hundred laboratories.

We pass by a natural transition to Etiology from Pathology, for to arrive at the causes of disease is the object of all pathological research ; and here, as in all the other sciences, much has been done, much remains to do.

I find in the classification of Farre, of the four great classes of disease—Zymotici, Cachectici, Monorganici, Metamorphici ; of the eighteen orders, and the two hundred species and varieties of diseases, we may safely say that we know the efficient cause in ninety one.

Finally, a few words on Therapeutics: according to some, our weakest point. We are told over and over again, *usque ad nauseam*, that in this part of our art the wisest physician is he who does least.

Buonaparte called him the best general who made the fewest mistakes, but inaction was the one mistake that he never pardoned. And no properly educated practitioner can plead ignorance as an excuse for such inaction now. I assert with perfect confidence, that no physician who is conversant with the know-

ledge of the time, and uses the remedial means employed by the masters of our science, will ever add one feather's weight to the burden of ill that all must bear. This is but a negative boast, but not the less a signal one for that; and casting our eyes upon the positive field of active therapeutics, I see no reason to be dissatisfied with our agents. We now understand how far medicines *can* act, and no longer expect miracles.

The strong and flourishing science of Organic Chemistry has done much for us: by synthesis and analysis of the principles of the excretions and secretions, it has half revealed the secret of nutrition. From the power that has, as it were, *created* from the inorganic world, substances whose formation has been hitherto supposed to be the property of the living organism alone, that ere long promises to create sugar and starch, and doubtless higher forms of food.

From this power we may expect not only such agents of natural digestion as pepsine, ptyaline and pancreatine, which it has given us, but the pabula which shall supply the missing element, or the re-agent which shall neutralise the pernicious element in every form of malnutrition, that is to say in nearly every form of disease.

Too often we are obliged impotently to watch the last painful effects of a long chain of causation that is beyond our reach, but even then our science affords us the means to support, to strengthen, to soothe the agonizer in the hour of trial; while forbidding in no uncertain tones the shooting of a poisoned arrow at a venture.

Once more, as Hippocrates says in "The Law:"

"Of all arts, medicine is the most noble."

Once more the physician may dare to repeat the antique oath of the Asclepiadæ:

"I swear by Apollo, the physician, and by Æsculapius and

Hygeia, and Panacea, and all the Gods, that I will follow that system of regimen which, according to my ability and judgment I consider for the benefit of my patients, and will abstain from what is harmful and perilous. I will give no deadly medicine if asked, nor suggest such counsel; with purity and with holiness I will pass my life and practise my art. While I continue to keep this oath unviolated, may it be granted me to enjoy my life and the practice of mine art, respected by all men in all times; but should I trespass and violate this oath, may I be by all men in all times, hated and scorned."

FINIS.

